USSR

UDC 669.295.5:620.183

AGEYEV, N. V., BABAREKO, A. A., RUBINA, Ye. B., KHOREV, A. I., KRASNOZHON, A. I., and BETSOFEN, S. Ya., Moscow

"Effect of the Processing Technology on the Texture of Rolled Sheets of VT-5-1 and VT-14 Titanium Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, No 5, 1973, pp 150-159

Abstract: The development of the texture of $\alpha$-phase in sheets, 2 mm thick, of VT-5-1 alloy and $\alpha+\beta$-alloy VT-14 on rolling, depending on the reduction degree, the deformation, temperature, and the divisibility of rolling, was studied by the method of polar figures. The results are discussed by reference to the correlation of principal texture components and direct and reverse polar figures. The intensity of the basal plane texture in the $\alpha$-phase VT-5-1 alloy grows monotonously with increasing reduction degree. In the $\alpha+\beta$ alloy VT-14, the basal texture changes not monotonously by changing deformation conditions;

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USSR

AGEYEV, N. V., et al., Izvestiya Akademii Nauk SSSR, No 5, 1973, pp 150-159

this is due to the influence of developing phase transformations $\alpha \rightleftarrows \beta$ and the twinning in the alloy. Cross rolling of the not overheated ingot slab from 6 to 2 mm , in 11-22 passages, at 700°C, or at 800°C by non fractional rolling is considered the optimum rolling system. A perfect basal texture in annealed sheets of VT-5-1 alloy leads to a high hardening effect at two-axial loading. Recrystallization annealing is of little effect on the type of the texture. A deflected basal texture of the VT-14 alloy does not effect a texture hardening in annealed and in dispersion-hardened sheets. Four figures, one table, ten bibliographic references.

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USSR

UDC 621.316.56

RUBINCHIK, A. M., ZHUKOV, P. V., GORDEYEVA, N. Ye., KOSTYUROVA, T. A.

"Investigation of the AP-1 Automatic Precision Switch"

Tenzometrich. Pribory dlya Issled. Stroit. Konstruktsiy [Tensometric Devices for Investigation of Construction Structures -- Collection of Works], Moscow, Stroyizdat Press, 1971, pp 149-161 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A18 by N. S.).

Translation: This article presents a study of the AP-1 automatic precision switch, designed for successive connection of the arms of half bridges consisting of tensometric sensors to a measuring device. The AP-1 consists of a lamellar drum, current-tapping rings, and contact brushes, the movement of which is controlled by an electromagnetic stepping mechanism. An estimate is given of the random errors in the measuring device-switch system indicated by tests performed on a special test stand. The transient resistances and efficiencies of the plate-contact pairs and the resistances between plates are determined. The results of investigations are evaluated. 9 Figures.

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USSR

UDC 669.71.053.4(088.8)

RUBINCHIK, F. M., and IL'INICH, V. N.

"Carbonization Device"

USSR Author's Certificate No 264375, filed 7 Jun 67, published 15 Jun 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G109 P)

Translation: A design is proposed for a carbonization device with gas-distributing and airlifting mechanisms, installed in a casing with finite bottom and equipped with a vent. To ensure effective operation of the large-capacity apparatus at low pressures of the hydrocarbon gas, the gas-distributing device is made in the form of an air-tight chamber with a perforated lattice situated in the upper part of the carbonization device's casing.

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Acc. Nr. AP0049129

Abstracting Service: CHEMICAL ABST. 5-70

Ref. Code: UR0078

100842f Synthesis and characteristics of new mixed organotin compounds containing alicyclic radicals. Rubinchik, G. F.; Manulkin, Z. M. (USSR). *Zh. Obshch. Khim.* 1970, 40(1), 136–40 (Russ). To EtMgI, from 3.15 g Mg in $Et_2O$, was added 14.41 g $(C_6H_{11})_2SnBr_2$ and the mixt. kept 2 hr on a steam bath to give 81% $(C_6H_{11})_2SnEt_2$ (I), $b_2$ 155–6°, $d^{18}$ 1.1990, $n_D^{18}$ 1.5190. Similarly were prepd.: 43% dimeric $(C_6H_{11})_2Sn(CH_2CH:CH_2)_2$, m. 274–5°; 81% $(C_6H_{11})_2SnPh_2$ (II), m. 118–19°; 61% (*p*-Me-$C_6H_4)_2Sn(C_6H_{11})_2$ $b_{12}$ 259–60°, $n_D^{21}$ 1.5850; 44.1% $(C_6H_{11})_2Sn(C_6H_4CH_2CH:CH_2)_2$, $b_1$ 245–60°, $d^{18}$ 1.2010, $n_D^{18}$ 1.5780; 70.3% $(C_6H_{11})_2Sn(C_6H_4OMe\text{-}p)_2$, $b_4$ 162°; 65.3% $(C_6H_{11})_2Sn(C_6H_4OEt\text{-}p)_2$ m. 170–1°, $b_{1.5}$ 169–70°; 32% $(C_6H_{11})_2Sn(C_6H_4Br\text{-}p)_2$ (analyzed but undescribed otherwise); 44.4% $(C_6H_{11})_2SnC_6H_4C_6H_{11}\text{-}p$, m. 75°, $b_2$ 227–8°; 35% $(C_6H_{11})_2SnC_6H_4OPh\text{-}p$, m. 239–40°. Reaction of 4.48 g I with 2.09 g Br in $Et_2O$ gave 70% cyclohexyl bromide, $C_6H_{11}SnEt_2Br$, and $(C_6H_{11})_2SnEtBr$; others underwent a similar random bromination. I and iodine in refluxing $CHCl_3$ 2 hr gave 60% cyclohexyl iodide, some $C_6H_{11}SnEt_2I$, and more $(C_6H_{11})_2SnEtI$, while II and iodine in $CHCl_3$ gave 87% PhI and some $PhSn(C_6H_{11})_2I$. $C_6H_{11}SnEt_2Br$ $b_6$ 124–5°, $d^{18}$ 1.5340, $n_D^{18}$ 1.5435; $(C_6H_{11})_2SnEtBr$ $b_6$ 175–6°, 1.4680, 1.5508; $(C_6H_{11})_2SnPhBr$ m. 58–9°, $b_{14}$ 227–8°; $C_6H_{11}SnEt_2I$, $b_6$ 151–2°, 1.6250, 1.5665; $(C_6H_{11})_2SnEtI$, $b_{3.5}$ 191–2°, 1.5960, 1.5750; $(C_6H_{11})_2SnPhI$, $b_{14}$ 250–1°, 1.6190, 1.6160.

G. M. Kosolapoff

REEL/FRAME
19800935

USSR

UDC 581.6:615.779.934:547.56

VICHKANOVA, S. A., RUBINCHIK, M. A., ADGINA, V. V., IZOSIMOVA, S. B., MAKAROVA, L. V., SHIPULINEA, L. D., and GORYUNOVA, L. V., All-Union Institute of Medicinal Plants

"Antimicrobial and Antiviral Activity of Some Natural Coumarins"

Leningrad, Rastitel'nyye Resursy, No 3, 1973, pp 370-379

Abstract: The bacteriostatic, fungistatic, and protistostatic activity of 33 natural coumarins of plant origin was investigated by the method of serial dilutions of the compounds in appropriate nutrient media. The microorganisms studied were Staphylococcus aureus, Escherichia coli, Mycobacterium tuberculosis, Microsporum lanosum, Candida albicans, Entamoeba histolytica, and Trichomonas vaginalis. The activity of the coumarins against herpesvirus and influenza APR-8 virus was also investigated. Fourteen of the compounds were active against M. tuberculosis, parasitic protozoans, and gram-negative bacteria. None was effective against any of the viruses. The terpenoid and 3-alkyl-substituted coumarins offer the most promise as bacteriostatic and fungistatic agents.

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UNCLASSIFIED

TITLE--EFFECT OF GRINDING SPINDLE IMBALANCE ON SURFACE WAVINESS DURING INFEED GRINDING -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-RUBINCHIK, S.I., SOLOVEYCHIK, YA.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, STANKI I INSTRUMENT, NO 2, 1970, PP 4-6

DATE PUBLISHED----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL GRINDING, GRINDING MACHINE, SURFACE FINISHING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1295

STEP NO--UR/0121/70/000/002/0004/0006

CIRC ACCESSION NO--AP0123254

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0123254 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CAUSES OF GRINDING SPINDLE IMBALANCE ARE INVESTIGATED AND ITS EFFECT ON SURFACE WAVINESS OF A HOLE UNDER MACHINING. MATHEMATICAL DEPENDENCIES ARE GIVEN WHICH MAKE IT POSSIBLE TO MAKE A QUANTITATIVE EVALUATION OF THE INDIVIDUAL COMPONENTS OF WAVINESS CONDITIONED BY IMBALANCE. AN ANALYSIS IS GIVEN OF THE EFFECT OF RPM VARIATION AND OVERHAND OF THE GRINDING SPINDLE ON WAVINESS DURING CHANGEOVER FROM TRUING UP AND DRESSING THE GRINDING WHEEL TO GRINDING. THE GIVEN DATA MAKE IT POSSIBLE TO DETERMINE THE SUBSTANTIATED REQUIREMENTS FOR GRINDING DISCS AND FOR THE DESIGN OF INTERNAL GRINDING MACHINES WITH RESPECT TO THOSE PARAMETERS WHICH DETERMINED THE EFFECT OF IMBALANCE ON THE QUALITY OF THE WORK PIECE.

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ARKHIPKIN, V. I., KOSTIKOV, V. I., GAUKHMAN, YU. V., and RUBINCHIK, YE. A.,
Moscow Institute of Steel and Alloys

"Two-Layer Protective Coatings on Graphite"

Kiev, Poroshkovaya Metallurgiya, No 5, May 70, pp 55-59

Abstract: In view of the widespread use of graphite in modern technology and the advantages of tungsten coatings on graphite, studies were conducted of intermediate layers to decrease carbon diffusion into tungsten and its detrimental effect on the exploitational properties of the coating. In the experiments, intermediate layers of SiC, TiC, ZrC, and HfC were applied on two types of graphite: MG-1 and AG-1500. The carbide layers were applied by spreading, using the method developed earlier by V. P. Yelyutin and his associates. The external tungsten coating was applied by plasmic spraying using the UPU-3 device in a chamber with a controllable medium (purified argon). The density of tungsten coatings obtained by this method was about 90%.

Interaction in the systems graphite -- metal carbide -- tungsten were studied, and the parameters of mutual diffusion of metal atoms in these systems were determined. As a result of the investigations conducted, it was established that the most promising intermediate layer material is hafnium carbide. The use of silicon

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ARKHIPKIN, V. I., et al., Poroshkovaya Metallurgiya, No 5, May 70, pp 55-59

carbide intermediate layers is inexpedient due to the formation of comparatively low-melting tungsten silicides.

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USSR

EQUIPMENT
Aeronautical

UDC: 621.822.5

BELOUSOV, A. I., RZHEVSKIY, V. P., KASHIN, B. M., RUBINCHIK, Yu. G., Kuybyshev "Order of the Red Banner of Labor" Aviation Institute imeni Academician S. P. Korolev

"A Throttle for a Hydrostatic Bearing"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5, Feb 73, Author's Certificate No 364773, Division F, filed 18 Dec 70, published 28 Dec 72, p 107

Translation: This Author's Certificate introduces a throttle for a hydrostatic bearing. The device contains an insert of MR porous material accommodated in a housing. As a distinguishing feature of the patent, provision is made for regulating hydraulic characteristics and improving operational properties. The throttle is equipped with a control device made in the form of a washer with channels for passage of lubricant which rests on the porous insert and is compressed by a nut mounted in the housing.

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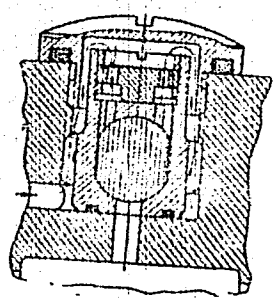
USSR

BELOUSOV, A. I. et al., USSR Author's Certificate No 364773



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USSR

RUBINER, R. M.

UDC 621.373:530.145.6

"A High-Temperature Source of High Power"

V sb. Primenenive plazmatrona v spektroskopii (Use of the Plasmatron in Spectroscopy--collection of works), Frunze, "Ilim", 1970, pp 147-149 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10D225)

Translation: The author describes the construction of a high-frequency plasmatron which can be used to produce a stationary high-power plasma (up to 20 kW for argon flows of 50-450 liters per hour). Three illustrations, bibliography of two titles. Resumé.

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USSR

UDC: 512.25/.26+519.3:330.115

KUTATELADZE, S. S., RUBINOV, A. M.

"On the Theory of Structural Duality of Functions and Sets"

V sb. Optimal'n. planirovaniye (Optimum Planning--collection of works), vyp. 17, Novosibirsk, 1970, pp 96-144 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V812)

Translation: A detailed exposition of the authors' results (DAN SSSR, 1971, v. 197, No 6, p. 1261; RZhKibernet, 1971, 12V811). §1 $H$-convex functions and sets (Minkowski-Fenkhel' scheme). §2. Adjoint functions (Fenkhel'-Moro-Rokafeller theory). §3. Polars to the cones of $H$-convex functions. Historical and literary commentaries. Bibliography of 62 titles.

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USSR

UDC: 535.37+621.373:535

RUBINOV, A. N., TOMIN, V. I., and ZHIVNOV, V. A.

"Shifting of the Molecular Fluorescence Spectrum in the Light Field of a Laser of Nonresonant Frequency"

Leningrad, Optika i Spektroskopiya, No 4, October 1973, pp 778-779

Abstract: A new effect is reported in this brief communication -- a shift in the spectrum of fluorescent organic molecules in solution under the action of nonresonant laser radiation. The experiment detecting this effect was conducted with a solution of $10^{-5}$ m/ℓ of 4-amino-N-methylphthalamide in glycerin, with the fluorescence in the solution excited by the second harmonic radiation of a ruby laser. A drawing of the absorption spectrum and the fluorescence, originally photographed from an ISP-22 spectroscope, is shown. It was found that the fluorescence spectrum was substantially shifted toward the short wave end if, in addition to the second-harmonic ruby laser radiation, the solution was put under laser radiation of the fundamental frequency. The authors think that this shift is connected with the quenching of the fluorescence and is of a solvatochromic nature.

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USSR

RUBINOV, A. N., ASIMOV, M. M. UDC: 621.375.82

"Time Dependence of Amplification in a Solution of Rhodamine-6G With Lamp Stimulation"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 108-110

Abstract: The time dependence of amplification is measured for an ethanol solution of Rhodamine-6G stimulated by standard flash lamps with pulse duration of 80 μs. The maximum amplification factor is attained considerably before the stimulating pulse reaches its maximum. It is experimentally shown that when the chemical purity of the solution is inadequate, reversible absorption arises in place of amplification, which can be attributed to the increased probability of singlet-triplet conversion. Two illustrations, bibliography of eleven titles.

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USSR

BUShUK, B. A., RUBINOV, A.N., and SMOL'SKAYa, P. I. UDC 621.375.82

"The Effect of Thermal Optical Distortions on the Radiation Spectrum of a Rhodamine 6-G Laser with Noncoherent Pumping"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 17, No. 6, Dec 72, pp 1112-1114

Abstract: When a liquid dye laser is pumped with noncoherent light, there is inevitably a nonuniform distribution of the index of refraction in the liquid. In a cylindrical tank, the optimum lasing conditions occur near the surface, where the greatest change in the index of refraction is found. This results in a characteristic cross section of the generated laser beam, with a center spot and a peripheral ring. The radiation from the ring is significantly more scattered than that in the central spot. It is evident that the coefficient of amplification in the lasing process is greater at the periphery, and since there is usually a change in spectral peak with variation in efficiency, the authors compared the spectra of the central spot and the peripheral ring.

Spectrographic observation shows that the radiation in the center spot is broken into sharp lines as a result of interference during multiple reflections. The peripheral radiation includes this component, but has a continuous component

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USSR

BUShUK, B. A. et alia, Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 17, No 6, Dec 72, pp 1112-1114

consisting of shorter waves than the discontinuous segment. It is postulated that the peripheral zone does not generate laser radiation but simply amplifies that which originates in the center and is diffused to the periphery; differential scattering of short waves and higher amplification at the periphery results in a structure with the spectral peak of the central spot on the long-wave side of the primary peak. The continuous section results from the amplification of luminescences developed in the maximum of the spectral band, and its continuous character is due to the wide-angle nature of these luminescences. By screening the central portion to prevent it from prematurely discharging the peripheral areas, one can develop independent peripheral lasing; the resulting spectrum is in the same region as the continuous spectrum of the previous experiment but has the lined interference structure expected in true lasing. Analysis of the shift between the two lasing spectra indicates a difference in thermal optical losses between the periphery and the center of 0.02 cc-1.

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USSR

RUBINOV, A. N.; ANUFRIK, S. S.

"Possibility of Dynamic Compensation of Thermooptical Distortion in the Resonator of a Liquid Laser"

Minsk, Zhurnal Prikladnoy Spektroskopii; July, 1972; pp 33-7

ABSTRACT: Experimental data are presented for a 6Zh rhodamine laser with lamp pumping showing the possibility of dynamic compensation of thermooptical losses in the resonator of a liquid laser. A decrease in this type of loss was obtained by the insertion in the resonator of an additional cuvette containing a dye which absorbs the pumping radiation but not the generated radiation. Pumping of the laser and the additional cuvette was accomplished simultaneously by light pulses with a duration of ~ 110 μsec. Under controlled conditions thermooptical distortion arising in the additional cuvette during the pumping action compensates the distortion developing in the active medium of the laser. In the optimal case it is possible in this way to increase the output oscillation energy by 40%.

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USSR

RUBINOV, A. N.; ANUFRIK, S. S., Zhurnal Prikladnoy Spektroskopii; July, 1972; PP 33-7

It is shown that the static compensation of distortion accomplished by inserting a lens in the resonator of a liquid laser is less effective.

The article includes 1 table and 2 illustrations. There are 2 references.

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USSR

TOMIN, V. I., RUBINOV, A. N. UDC: 535.371

"Bathochromic Luminescence of Organic Dyes in Alcohol Solutions and Polymer Matrices"

Leningrad, Optika i Spektroskopiya, Vol 32, No 2, Feb 72, pp 424-427

Abstract: New experimental data are presented which confirm the existence of luminescence not only for phthalimide solutions but also for dyes of other chemical classes (coumarins, polymethine dyes) in various solvents, including polymer matrices. The luminescence spectra were photoelectrically recorded. Experimental measurements show that bathochromic luminescence can be observed in liquid dye solutions only at low temperatures but can be observed at room temperatures in solid polymer solutions. A table is given showing the names of the dyes and solvents and also the frequencies of the absorption band maxima, the maxima of the bands of ordinary luminescence at low and room temperatures, maximum of bathochromic luminescence, and the bathochromic luminescence excitation frequencies. Typical spectra are given. The authors thank B. I. Stepanov for interest in the work, and B. N. Kas'yanov and Yu. V. Startsev for assistance with the experiments. Two figures, one table, bibliography of seven titles.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202710019-7"

USSR

UDC 621.375.8

BUSHAK, B. A., MIKHNOV, S. A., RUBINOV, A. N.

"Frequency-Tunable Dye Laser with Double Light Pulse Pumping" (Brief Communication)

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 15, No 4, Oct 71, pp 732-734

Abstract: The laser studied had a rhodamine solution in a double walled quartz tube. The diameters of the vessel were 3 and 10 mm. An aqueous solution of sodium nitrite was pumped through the outer tube to serve as a coolant and to filter out the ultraviolet from the pumping light. During operation, the filter protected the active solution, which was pumped through the inner tube at the rate of 4 m/sec. The electrical circuit is shown in a figure. The first pulse ignites the lamps, and the second, shifted by 40 to 90 microsec, triggers the discharge from a capacitor bank.

A Fabry-Perot interferometer in the resonator or a diffraction grating in place of one of the mirrors narrows the emission band and can be used to tune the output frequency. Turning the interferometer varies the output smoothly from 599 to 579 nm for any

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USSR

BUSHAK, B. A. et al, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 4, Oct 71, pp 732-734

pulse repetition frequency up to 30 Hertz, the upper limit of the experimental circuitry.

Experiments at 10 to 15 Hertz showed that beam divergence does not exceed 2 X $10^{-3}$ rad. The interferometer has no effect when tuned to the peak emission, but tuning to one side or the other increases the generation threshold and decreases the divergence of the beam.

Orig. art. has 3 figs. and 2 refs.

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USSR

RUBINOV, A. N., SMOL'SKAYA, T. I. UDC 621.373.8

"Effect of Photodissociation on the Energy Characteristics of Emission of Organic Dyes"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 5, Nov 71, pp 817-826

Abstract: The authors investigate the effect which photodissociation of dye has on the duration, power, and energy of laser emission excited by "white" light from flash tubes. The losses due to photodissociation of the molecules are calculated for various intensities and durations of the stimulating radiation. It is shown that when pumping exceeds the emission threshold by more than a factor of four, this form of loss becomes appreciably greater than losses due to triplet-triplet absorption. Photodissociation leads to saturation of the duration and energy of emission. The maximum possible values of these factors show an inverse proportional relation to the rate of photodissociation of the molecules. An estimate is given for the efficiency of emission of a dye solution, and conditions are determined for improving efficiency. The authors thank Academician B. I. Stepanov of the Academy of Sciences of the BSSR for interest in the work and constructive criticism. Four figures, bibliography of nine titles.

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USSR

RUBINOV, A. N. and TOMIN, V. I.

UDC 621.378.34

"Excitation of Polymethine Dyes at Low Temperatures"

Minsk, Zhurnal Prikladnoy Spektroskopii, (Journal of Applied Spectroscopy), Vol. 13, No. 5, Nov. 1970, p 788, 792

Abstract: Polymethine dyes are used extensively at room temperature for transforming the emission frequency of ruby and neodymium lasers. Since the spectroscopic characteristics of such dyes can change significantly with decrease in temperature, an investigation was made of the dependence of the spectra and excitation energy of two polymethine solutions on temperature: (I) 1, 1'-diethyl-4, 4'-carbocyaninniodide (Cryptocyanine) in glicerine and (II) 1, 1'-diethylindotricarbocyanine in ethanol. The dye solutions were excited by a ruby laser having a 30 to 40 megawatt pulse output of ~30 nsec duration. Spectra were recorded with a VF-90 autocollimating camera and ISP-51 spectrograph. The excitation energy was measured by a sensitive "rat-nest" bolometer. The dye samples were cooled by blowing liquid nitrogen vapor through a cryogenic vessel equipped with viewing ports. Output efficiency at room temperature of both dyes for the ruby laser frequency was 30%. Cooling of the dyes to 203°K shifts their emission spectra in the shortwave direction (this occurs also for other dyes). The

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202710019-7"

USSR

RUBINOV, A. N., et al, Zhurnal Prikladnoy Spektroskopii, Vol. 13, No. 5, Nov. 1970, p 788, 792

magnitude of the shift depends on the spectroscopic characteristics of the active medium, the concentration of dye molecules, and the coefficient of useful losses in the resonator. For dye I a temperature change from 293° to 203°K shifted the spectrum 120 $cm^{-1}$. Dye II is greatly dependent on the coefficient of useful losses $k_r$; when $k_r$ = 3.2 $cm^{-1}$, the shift was $\sim$ 230 $cm^{-1}$; when $k_r \sim$ 0.084 $cm^{-1}$, it was 750 $cm^{-1}$. When the temperature of dye I is lowered to 203°K, its luminescence maximum narrows and shifts about 90 $cm^{-1}$ in the short-wave direction, but the power output and absorption maximum remain practically the same. The luminescence maximum of dye II narrows when the temperature is decreased, but does not shift. The distribution of particles over the energy levels is calculated for dye I. In all cases the coefficient of detrimental losses exceeds the absorption coefficient of the solution, which fact indicates that these losses arise in the excitation process and are related to absorption in the triplet or singlet excitation levels. The data show that the distribution of particles over the energy levels is practically independent of temperatures, as are the transition probabilities between levels 1, 2, and 3. The population of the metastable level is $\sim$ 30% of the total number of particles, which fact indicates a strong triplet-triplet absorption. The probability of emissionless singlet-triplet conversion is evaluated. Orig. art. has 3 figs and 10 refs.

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USSR

RUBINOV, A. N.; TOMIN, V. I.

"Bathochromic Luminescence in Solutions of Organic Dyes during Low Temperatures"

Leningrad, Optika i Spektroskopiya; December, 1970; pp 1062-6

ABSTRACT: It is shown that for organic dyes in polar solvents at low temperatures a substantial dependence of the luminescence spectrum on the frequency of the exciting light can be observed. This phenomenon appears, during excitation of the dye, on the long-wave boundary of the absorption band and results in a shift of the luminescence spectrum toward the long-wave region (bathoscopic luminescence). This phenomenon can be explained by an analysis of the energy levels of a fluorescent molecule in a polar solvent.

The article includes 4 equations and two figures. There are 9 references.

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USSR

RUBINOV, A. N., and TOMIN, V. I.

"Condition for Realizing Stepanov Universal Relationship for Complex Molecules"

Leningrad, Optika i Spektroskopiya, May 1971, pp 859-867

Abstract: The work is devoted to an analysis of the influence of orientation effects of a solution on the realizability of the Stepanov universal relationship between absorption and luminescence spectra of complex molecules in a solution.

To explain existing experimental data on verifying the realizability of a universal relationship for low and room temperatures it is suggested that a solution be considered as a system with nonuniformly broadened absorption and luminescence spectra. The properties of such a system are described by means of a modified system of energy levels, making it possible to define more clearly the conditions for realizing the universal relationship and to explain the dependence of the luminescence spectra of a dye on the temperature.



APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202710019-7"

USSR

RUBINOV, A. N., and TOMIN, V. I., Optika i Spektroskopiya, May 1971, pp 859-867

With the suggested model it is possible to predict the effect of "bathochrome" luminescence: i.e., a shift of the luminescence spectrum to the long-wave region when the solution is excited at the long-wave edge of the absorption band. Experimental data confirming the existence of this effect are obtained.

The article includes 16 equations and 3 figures. There are 16 references.

USSR R

RUBINOV, A. N., SMOL'SKAYA, T. N.

"Determination of the Luminescent Characteristics of Organic Dyes on the Basis of the Properties of Their Optical Generation"

Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 34, No 6, 1970, pp 1312-1315

Abstract: On the basis of equations linking the generation properties of organic dyes to their luminescent characteristics, a method is proposed for determining such parameters of the molecules as the probability of singlet-triplet conversion, the cross section of triplet-triplet absorption, and the lifetime of the metastable state. The method is based on measurements of pumping and generation characteristics.

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USSR UDC 621.378.3

RUBINOV, A. N.

"Duration of Organic Dye Solution Generation"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 57-64

Abstract: This paper deals with the generation of dyes excited by light pulses from solid-state lasers and especially with the losses in radiation during the generation process -- the losses in triplet-triplet absorption in particular. Since such losses are practically unavoidable, there is interest in a more detailed analysis of their effect on the duration of the laser radiation. In this article the duration of organic dye generation is computed as a function of the parameters of the material, of the resonator, and of the pumping. The computations are made for a four-level system, taking into account relaxation of the metastable state in conformity with the excitation conditions of the pulse tubes. Curves are given for the loss factor and the maximum amplification factor as functions of time, the duration

USSR

RUBINOV, A. N., Zhurnal Prikladnoy Spektroskopii, Vol. 12, No. 1, Jan 1970, pp 57-64

of generation as a function of the pumping intensity, as well as the initial loss factor and the rise time of the pumping pulse. The author concludes by expressing his tratitude to B. I. Stepanov, academician of the Belorussian Academy of Sciences.

USSR

R

UDC 535.89

RUBINOV, A. N. and NIKOLAYEV, V. I., Institute of Physics, Academy of Sciences Belorussian SSR

"Stabilization and Control of the Single-Pulse Radiation Spectrum of a Ruby Laser"

Minsk, Doklady Akademii Nauk BSSR, Vol. 14, No. 1, 1970, pp 20-24

Abstract: Since the spectrum of a single-pulse ruby laser is generally poorly reproducible from burst to burst, a stabilization method is described which makes it possible to retune the working frequency of the generated radiation in a certain time interval. The results are compared with measurements of the spectrum of single pulses obtained with the same ruby samples for different methods of Q-switching. The measurements were conducted on two different samples: sample no. 1 had a length of 48 mm and a diameter of 8 mm and exhibited good optical homogeneity; sample no. 2 was of poorer quality and was 66 mm long and 6.5 mm in diameter. Q-switching was achieved either with a total internal reflection prism rotating at 30,000 rev/min or with a phototropic shutter, consisting of a KS-19 filter or a solution of gallium chloride phthalocyanin in orthochlorobenzene. The results of interferometer studies to compare the radiation properties of the different versions of the lasers are reported.

Acc. Nr. AP0049683 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code UR0368

105762q Duration of the generation of organic dye solutions. Rubinov, A. N. (USSR). *Zh. Prikl. Spektrosk.* 1970, 12(1), 67–84 (Russ). The duration of org. dye generation is studied in relation to the parameters of material, resonator, and pumping, with excitation from single-pulsed solid laser radiation. Calcns. are made for a 4-level scheme, and consideration of the relaxation of the metastable state application to conditions of excitation by pulsed lamps.

J. Beller

REEL/FRAME
19801584

USSR

UDC: 621.378.385

BALTAKOV, F. N., BARIKHIN, B. A., KORNILOV, V. G., NIKHNOV, S. A., RUBINOV, A. N., and SUKHANOV, L. V.

"Pulse Laser Using 6Zh Rhodamine Solution in Ethyl Alcohol with a Radiation Energy of 110 Joules"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, vol 42, No 7, 1972, pp 1459-1461

Abstract: The laser described in this paper is pumped by a special lamp and uses a reflector space filled with MgO powder. Length of the ring-shaped discharge space is 45 cm, with a gap of 1 cm, and the space is filled with xenon at a pressure of 10 torr. A cross section of the laser as well as a cross section of the vessel serving as the inner wall of the laser are shown in diagram form. A filter of $NaCOOCH_3$ was used to absorb ultraviolet light shorter than 230 nm and thus weaken the tendency to decay of the 6Zh rhodamine solution under light, with resultant increase in radiational energy. Curves are plotted for the current and voltage of the pumping pulse and the oscillation pulse as functions of time. The brightness temperature of the discharge was computed at about 20,000° K. The wavelength of the radiation generated was 590 nm and the width of the oscillation line 20 nm. The authors are associated with the Physics Institute of the Belorussian Academy of Sciences at Minsk.

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USSR

UDC 621.375.82

SMOL'SKAYA, T. I., ZHUKOVSKAYA, A. I., and RUBINOV, A. N.

"Effect of Natural Impurities On the Oscillation Characteristics of a Standard 6Zh Rhodamine Solution"

Minsk, Zhurnal Prikladnoy Spektroskopii, vol 17, No 5, 1972, pp 775-780

Abstract: The research described in this paper is aimed at clarifying the effect of the chemical purity in dye solutions on their oscillation efficiency and setting up experimental criteria for the content of harmful impurities in the solutions. In the authors' opinion little work has been done on chemical purity requirements of such solutions. Their experiments in the comparative measurements of the threshold, energy, and duration of the oscillations showed that solutions prepared from ethyl alcohol of the same brand may differ widely in their energy parameters, and that distillation of the alcohol was not always sufficient to restore fully the oscillation capability of the solution. The results of the measurements conducted by the author are given in the form of curves -- oscillation energy of the standard 6Zh rhodamine

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USSR

SMOL'SKAYA, T. I., et al, Zhurnal Prikladnoy Spektroskopii, vol 17, No 5, 1972, pp 775-780

solution as a function of water content and fluorescent output quanta, absorption and luminescent spectra of 62h fractions -- together with a table of the characteristics of the various fractions. The authors express their appreciation to B. N. Kas'kov for his assistance with the luminescence measurements.

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C. Operations Research

USSR

RUBINOV, M. M. UDC: 51

"Some Examples of an Internal Seminorm in Linear Programming Problems"

Sb. tr. In-t mat. Sib. otd. AN SSSR (Collected Works. Institute of Mathematics of the Siberian Department, Academy of Sciences of the USSR), 1972, vyp. 8(25), pp 107-116 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V485 by the author)

Translation: The paper deals with certain questions relating to the introduction of an internal seminorm in a linear programming problem. The concept of an internal seminorm was proposed by A. M. Vershik (RZhMat, 1971, 4V541). The internal seminorm in linear programming problems enables investigation of problems relating to duality in linear programming. One of the examples of an internal seminorm is the well known Kantorovich-Rubinstein norm in measure space. The internal seminorm is defined first on a cone. The paper considers various methods of extending the seminorm from a cone to all of space with certain assumptions, and the corresponding examples are presented. Then an example of a linear programming problem is given which has a significance distinct

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USSR

RUBINOV, M. M., Sb. tr. In-t Mat. Sib. otd. AN SSSR, 1972, vyp. 8(25), pp 107-116

from that of the duality problem in standard formulation. It is shown that in the case of introduction of the seminorm the duality problem can be so formulated that its value is equal as usual to the value of the initial problem.

2/2

USSR

UDC 621.382.2

ADIROVICH, E. I., ATABAYEVA, A. N., RUBINOV, V. M., YUABOV, YU. M.

"Silicon as a Material for Dielectric Electronics"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 11, 1971, pp 2052-2057

Abstract: An experimental study was made of the conditions under which dielectric conditions occur in silicon, that is, the current is determined by the electrode emission instead of the carrier concentration in the material itself. The method of two-way diffusion alloying was used to introduce copper from an aluminum melt into plates of high-resistant silicon ($\rho \sim 10^4$ ohms-cm) ~ 100 microns thick. This method insured the possibility of controllable and reproducible production of a thin (~10 microns) layer of high-resistant silicon between two $p^+$-type regions acting as emitting electrodes. The conditions for a space charge limited emission current were realized in the region of quite low voltages (0.1-10 volts) with variation of the current by 3-4 orders ($10^{-5}$-$10^{-2}$ amps).

A series of control experiments is described showing that in M-$p^+$-p-$p^+$-M structures manufactured by this method, space charge limited currents actually occur. Effective devices for dielectric electronics can be built on the basis of silicon and other ideal monocrystalline semiconductors with high mobility.

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USSR

UDC 537.311.33:546.289

KONOPLEVA, R.F., NOBIKOV, S.R., RUBINOVA, E.E., ZAPOROZHCHENKO, YU.A.

"Investigation Of Radiation Defects In Germanium With Irradiation By High Energy Protons"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

Translation: The results are presented of an investigation of the temperature dependence and spectral curves of the impurity photoconductivity for n-type Ge with an initial concentration of Sb of $2.10^{15}$ $cm^{-3}$ and of p-type with a concentration of Ga of $4.10^{14}$ $cm^{-3}$ irradiated by protons with an energy of 660 Mev with various integrated fluxes (from $1.10^{11}$ to $1.10^{14}$ $r/cm^2$). The initial rate of formation is determined for the defects, which for n- and p-Ge proved to be on the order of $10^2$ $cm^{-1}$. The theoretical computation presented of the number of displaced atoms shows that the portion in the formation of defects as a result of Rutherford scattering is small. The number of displaced atoms owing to nuclear elastic and nonelastic interactions amount to $10^3$ and $10^2$ $cm^{-1}$, respectively. It is found that during irradiation, acceptor levels are primarily found

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USSR

KONOPLEVA, R. F., et al., Radiatsion. fiz. nemet. kristallov, 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

in n- and p-type Ge. From the temperature dependence of the Hall constant and the spectral curves of the impurity photoconductivity, the eight levels pertaining to the radiation defects are determined ($E_c$ - 0.1 e.v., $E_c$ - 0.20 e.v., $E_c$ - 0.27 e.v., $E_c$ - 0.34 e.v., $E_v$ + 0.27 e.v., $E_v$ + 0.20 e.v., $E_v$ + 0.12 e.v., $E_v$ + 0.065 e.v.) 6 ill. 2 tab. 2 ref. Summary.

2/2

USSR

UDC 537.311.33:546.289

KONOPLEVA, R.F., NOBIKOV, S.R., RUBINOVA, E.E., ZAPOROZHCHENKO, YU.A.

"Investigation Of Radiation Defects In Germanium With Irradiation By High Energy Protons"

V sb. Radiatsion. fiz. nemet. kristallov (Radiation Physics Of Nonmetal Crystals--Collection Of Works), Minsk, Nauka i tekhn., 1970, pp 106-111 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B25)

Translation: The results are presented of an investigation of the temperature dependence and spectral curves of the impurity photoconductivity for n-type Ge with an initial concentration of Sb of $2.10^{15}$ $cm^{-3}$ and of p-type with a concentration of Ge of $4.10^{14}$ $cm^{-3}$ irradiated by protons with an energy of 660 Mev with various integrated fluxes (from $1.10^{11}$ to $1.10^{14}$ $r/cm^2$). The initial rate of formation is determined for the defects, which for n- and p-Ge proved to be on the order of $10^2$ $cm^{-1}$. The theoretical computation presented of the number of displaced atoms shows that the portion in the formation of defects as a result of Rutherford scattering is small. The number of displaced atoms owing to nuclear elastic and nonelastic interactions amount to $10^3$ and $10^2$ $cm^{-1}$, respectively. It is found that during irradiation, acceptor levels are primarily found in n- and p-type Ge. From the temperature dependence of the Hall constant and the spectral curves of the impurity photoconductivity, the eight levels pertaining to the radiation defects are determined ($E_c$ - 0.1 e.v., $E_c$ - 0.20 e.v., $E_c$ - 0.27 e.v., $E_c$ - 0.34 e.v., $E_v$ + 0.27 e.v., $E_v$ + 0.20 e.v., $E_v$ + 0.12 e.v., $E_v$ + 0.065 e.v.) 6 ill. 2 tab. 2 ref. Summary.

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USSR

UDC 681.325.3

RUBINOVICH, Ya. V.

"Angular Displacement Coder"

USSR Author's Certificate No. 274510, Filed 30/04/68, Published 12/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B566P).

Translation: This invention can be used in systems in which it is necessary to transmit information concerning the position of some shaft over considerable distances or to input this information to a computer. Angular displacement coders are known which consist of coarse and fine reading drums with notches and depressions in Grey code, connected through a Maltese cross drive, used for discrete movement of the coarse reading drum in relationship to the fine reading drum. These coders characteristically have great uncertainty of conversion when the coarse reading drum stops in an intermediate position in relationship to the Maltese cross drive. The purpose of this invention is to create a coder allowing angular displacements to be coded with any required accuracy and eliminating the uncertainty in conversion without introducing additional hardware or logic circuits. 1 fig.

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USSR

UDC 577.4

RUBINSHTEYN, A. G.

"Comparative Characteristic of the Interrayon and International Exchange Based on the Principle of Territorial Economic Equilibrium"

V sb. Metody i modeli territorial'n. planir. (Methods and Models of Territorial Planning -- collection of works), vyp. 2, Novosibirsk, 1971, pp 138-160 (From RZh-Kibernetika, No 7, Jul 72, Abstract No 7V522)

No abstract

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USSR

RUBINSHTEYN, A. I., FAYN, V. M., Far Eastern State University, Vladivostok, Institute of Solid State Physics, Academy of Sciences of the USSR, Chernogolovka

"A Theory of Avalanche Ionization in Transparent Dielectrics Under the Effect of a Strong Electromagnetic Field"

Leningrad, Fizika Tverdogo Tela, Vol 15, No 2, Feb 73, pp 470-478

Abstract: The authors investigate the possibility of formation of avalanche ionization in transparent dielectrics within the framework of a theory which is not limited by the smallness of the field. An analysis is made of the energy balance of a "seed" electron in the conduction band under the effect of a light pulse. The electron energy "saturates" in a sufficiently strong field, and a maximum energy exists which is different from infinity. If the ionization energy is higher than this maximum, then as kinetic considerations will show, the probability of avalanche ionization is exponentially small. In this case the mechanism of multiphoton avalanche ionization may be effective. The authors thank I. B. Levinson for constructive criticism.
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USSR

UDC 541.183:661.183.6

MISHIN, I. V., KLYACHKO-GURVICH, A. L., BRUYEVA, T. R., and RUBINSHTEIN, A. M., Institute of Organic Chemistry Imeni N. D. Zelinskii, Acad. Sc. USSR

"The Technique for Improving the Adsorption Capacity of the Sodium Form of Mordenite."

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 72, p 2370

Abstract: Treatment of the starting plant preparation of the mordenite (I) with 2N HCl produces the H-form (II), which can be recationized to the original composition (III). It was shown that (III) has adsorption capacity approaching that of (II) -- identical with the "wide-porous" NaM described in literature. Initial heats of adsorption of benzene for (I) and (III) are similar, those of (II) being lower.

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USSR

UDC 621.373.826:621.317.38

LEYKIN, A. YA, MUNTYAN, K. I., RUBINSHTEYN, B. I., and SOLOV'YEV, V. S.

"Using Resonance Luminescence and the Method for its Registration With the Aim of Measuring the Energy of Pulsed Lasers"

Radiotekhnika. Resp. mezhved. temat. nauch.-tekhn. sb. (Radiotekhnika. Republic Interagency Thematic Scientific-Technical Collection of Articles), 1972, vyp.21, pp 181-185 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 A223)

Translation: The authors describe the principles for measuring the energy of lasers with a modulated energy factor by transforming the radiation energy into luminescence energy. Three methods for luminescence registration are considered. The use of resonance luminescence and the methods described for its registration make it possible to simplify the process for measuring the energy of high power, nanosecond, optical pulses within a broad dynamic range. Original article: one illustration and five bibliographic entries. Resume.

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USSR UDC: 621.396.6:621.318(088.8)

RUBAL'SKAYA, E. V., GENDELEV, S. Sh., RUBINSHTEYN, B. Ye., YAKOVLEV, Yu. M. TITOVA, A. G.

"A Charge for Growing Ferrite Single Crystals"

USSR Author's Certificate No 253953, filed 4 May 67, published 30 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V422 P)

Translation: This Author's Certificate introduces a charge composition which makes it possible to increase the saturation induction of ferrites (90.5 T) while retaining a narrow ferromagnetic resonance line. The charge consists of higher oxides of iron, zinc, lead and boron (13.3-16.0, 0.3-1.6, 68.1-68.7 and 10.4-11.0 wt.% respectively), and $Li_2CO_3$. Heat treatment conditions are described. Also covered by the patent is a charge composition for making ferrites with a saturation induction of up to 0.44 T; a distinguishing feature of this composition is the substitution of gallium oxide for zinc oxide. The propotions by weight are also changed. N. S.

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USSR UDC 620.194.4

ZYUBRIK, A. I., RUBINSHTEYN, G. M., and VASILENKO, I. I., Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR, L'vov; Zagoslovskiy Aluminum Plant

"Metallized Coatings to Protect Welds from Corrosion Cracking"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 22-24

Abstract: Welded samples of St. 3 steel measuring 300 x 500 x 7 mm and 250 x 500 x 4 mm with a seam length of 500 mm and with a residual welding stress of the seams approaching the yield point of the base metal were subjected to corrosion cracking with the application of an external load. A portion of the plates were cut transverse to the weld seam to produce samples measuring 300 x 30 x 7 and 250 x 20 x 4 mm which were subjected to a bend load to the yield point (one before coating, the other after coating). Both types of samples were sandblasted to clean and roughen their surfaces. The surfaces of the samples were electroplated with nickel, copper, zinc, iron, St. 3 steel, or 1Kh18N9T steel using alternating current at 25 v. Coating thickness ranged from 0.1 to 1.2 mm to permit determination of the optimum thickness which would provide the best coating-base metal bonding and the most reliable protection of the surface from corrosive media, and which would allow the metal sample to be strained without rupture of the coating.

The best results were produced with a coating of 1Kh18N9T stainless steel. Out of 10 samples coated with this steel, not one ruptured. This was true whether

USSR

ZYUBRIK, A. I., et al., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 22-24

the corrosive medium was a nitrate ($NH_4NO_3$-50% solution) or alkali (NaOH-40% solution), where the corrosion rate was 0.8 and 0.9 kg/m$^2$-hr respectively. Optimum coating thickness was 0.4 mm, where the time to cracking was close to 100 hours in the nitrate solution.

The authors state that additional protection against corrosion cracking may be achieved by using resins and lacquers.

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USSR

RUBINSHTEYN, G. Sh., SHMYREV, V. I.

"Methods of Minimization of Quasiconvex Function in a Convex Polyhedron"

Sb. tr. In-t mat. Sib. otd. AN SSSR [Collected Works of Mathematics Institute, Siberian Division Academy of Sciences USSR], No 1(18), 1971, pp 82-117, (Translated from Referativnyy Zhurnal, Kibernetika, No 3, 1972, Abstract No 3 V413 by S. Lebedev).

Translation: Diagrams of finite methods of convex programming are described, based on directed sampling of the boundaries of a polyhedron, similar in their idea to those developed for linear programming problems. For example, an analogue of the method of successive improvement of a plan consists of the following: suppose the plan of a problem $x^{(k)}$ belonging to face $G(x^{(k)})$ is known. A point is sought which is minimal on $L(x^{(k)})$, the minimum linear manifold containing $G(x^{(k)})$. If there is no such point, the ray belonging to $L(x^{(k)})$ is found, along which the goal function decreases monotonically. A shift is made in the direction toward the point (or parellel to the ray) until the boundary of $G(x^{(k)})$ is reached or until the point is found, if it

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USSR

RUBINSHTEYN, G. Sh., SHMYREV, V. I., Sb. tr. In-t mat. Sib. otd. AN SSSR, No 1(18), 1971, pp 82-117.

is the plan of the problem. If $x^{(k)}$ is minimal on $L(x^{(k)})$, but not optimal, a shift is made a face of higher dimensionality. Realization of this system requires an apparatus for location of the point which is minimal in a linear manifold or a ray along which the goal function decreases.

Diagrams of a dual method based on analysis of the dual problem and combined utilization of both methods are also described.

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1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ASSOCIATION OF ORGANIC SULFIDES AND 3,METHYLBENZOTHIOPHENE STUDIED BY A CRYOSCOPIC METHOD -U-

AUTHOR-(03)-MARKOV, YU.A., RUBINSHTEYN, I.A., KREYN, S.E.,

COUNTRY OF INFO--USSR

SOURCE--NEFTEKHIMIYA 1970, 10(1), 123-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THIOPHENE, SULFIDE, BENZENE DERIVATIVE, STABILITY CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1993 STEP NO--UR/0204/70/010/001/0123/0125

CIRC ACCESSION NO--AP0112957

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0112957

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLNS. OF SMALLER THAN OR EQUAL TO 0.24 G MOLE OF (N C SUB7 H SUB15) SUB2 S, (N C SUB8 H SUB 17) SUB2 S, ETSCH SUB2 PH, 3,METHYLBENZOITHIOPHENE, PH SUB2 S, AND (PHCH SUB2) SUB2 S IN 1000 G CYCLOHEXANE WERE EXAMD. MEASURABLE ASSOCN. WAS FOUND ONLY WITH LAST 3 COMPDS., THE AV. STABILITY CONSTS. OF THE ASSOCS. (NO. OF MOLS. OF SULFIDE IN THE ASSOC. IS 5) OF THE LAST 2 BEING 4.358 AND 7.482, RESP.

UNCLASSIFIED

USSR

UDC 541.18+621.133.712+62.505

KOMAROVA, I. V., RUBINSHTEYN, R. N., and SENYAVIN, M. M., Institute of Geochemistry and Analytical Chemistry Imeni V. I. Vernadskiy, Moscow

"Optimization Method for the Ion Exchange Water Demineralization Process"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 11, Nov 72, pp 2834-2837

Abstract: A method has been proposed for the optimization of the ion exchange water demineralization process based on a mathematical model of the process converted to economic criteria. The problem was solved on an digital computer system by one of the nonlinear programs using the approach of the most rapid passage. The conditions for optimal operations of a column have been shown to depend on the properties of the starting and purified water.

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1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--STANDARDS FOR THE SPECTROGRAPHIC ANALYSIS OF PURE MATERIALS -U-

AUTHOR-(02)-KARPEL, N.G., RUBINSHTEYN, R.N.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 172-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--SPECTROGRAPHIC ANALYSIS, GRAPHITE, METAL OXIDE, CHEMICAL PURITY, HIGH PURITY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1842 STEP NO--UR/0032/70/036/002/0172/0175

CIRC ACCESSION NO--AP0118806

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118806

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POWD. MIXT. OF THE TEST METAL, GRAPHITE, AND THE REF. METAL AS ITS OXIDE IS USED AS A SPECTROGRAPHIC STD. HOWEVER, THESE STDS. CAN BE USED ONLY WHEN THE REDN. OF THE OXIDE IS COMPLETE BEFORE THE END OF THE EXPOSURE TIME. THE RADIUS OF THE OXIDE PARTICLES MUST BE SMALLER THAN 50 MU IN ORDER NOT TO LIMIT THE PROCESS OF REDN. THE REDN. OF OXIDE PARTICLES (RADIUS 5 TIMES 10 PRIME NEGATIVE3 CM) AT 1000DEGREESK IS COMPLETE IN 0.5 AND 3 SEC WHEN THE PARTIAL PRESSURE OF CO AT THEIR SURFACE IS 760 AND 100 MM HG, RESP.

UNCLASSIFIED

Acc. Nr: AP0041930 R Ref. Code: UR 0245

PRIMARY SOURCE: Voprosy Psikhologii, 1970, Nr 1, pp 121-128

# ON SOME DEBATABLE PROBLEMS OF EXPERIMENTAL PATHOPSYCHOLOGY

Zeygarnik, B. V.; Rubinshteyn, S. Ya.

Some discutable problems of the definition of the subject of abnormal psychology and the delimiting of this subject from the subject of psychiatry are presented in the paper. The importance of the theory and methods of psychology for psychiatric clinic is shown. The question is also discussed of some fundamental differences of methodology of the construction of experiments accepted in Soviet pathopsychology for practical problems of psychiatric clinic. The necessity of overcoming the gap of concepts in Soviet psychology and psychiatry (especially in the analysis of the development and the disintegration of personality) is emphasized.

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C2

REEL/FRAME
19751821

USSR

UDC: 51

KALADZE, V. A., KAPLINSKIY, A. I., RUBINSHTEYN, Ya. S.

"Adaptive Random Search Algorithms Modified for Use in 'Drift' Conditions"

Tashkent, Vopr. kibernetiki--sbornik (Problems of Cybernetics --collection of works), vyp. 53, 1972, pp 111-120 (from RZh-Kibernetika, No 5, May 73, abstract No 5V710 by the authors)

Translation: The authors investigate optimization of a unimodal object in a situation of measurement interference and extremum "drift". Regions of suitable application of the proposed algorithms are considered.

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USSR

UDC 669.293:168

LYAKISHEV, N. P., PLINER, Yu. L., and RUBINSHTEYN, Ye. A.

Niobium in Ferrous Metallurgy (Niobiy v chernoy metallurgii), Moscow, "Metallurgiya" Press, 1971, 216 pages, 103 illustrations, 66 tables, 446 bibliographic references.

Translation of Annotation: The book outlines the physicochemical properties of niobium and its compounds with elements contained in various steels produced by the home industry as well as of slag systems with niobium oxides. The effects of niobium as an alloy component on the service properties of various steel groups are discussed. Data are presented on ores with niobium concentrations and on the characteristics of their reduction with carbon, silicon, and aluminum. Contemporary techniques of smelting ferroniobium and other niobium-containing alloys are considered, including methods of their addition to the steel bath. A technical-economic evaluation of various methods for producing ferroniobium is proposed. The book is intended for engineering and technical personnel of metallurgical plants and may be of interest to students in related specializations.

Table of Contents

USSR

LYAKISHEV, N. P., et al., Niobium in Ferrous Metallurgy (Niobiy v chernoy metallurgii), Moscow, "Metallurgiya" Press, 1971, 216 pages, 103 illustrations, 66 tables, 446 bibliographic references.



2/2

USSR

RUBINSHTEYN, Ye. A., Institute of Radio Physics and Electronics of the Academy of Sciences UkrSSR, Khar'kov

"Interaction of Electromagnetic Waves in Semiconductors With an Ionic Lattice"

Leningrad, Fizika Tverdogo Tela, No. 4, Apr 71, pp 1105-1110

Abstract: The interaction of longitudinal and transverse electromagnetic fields in a semiconductor with an ionic lattice is studied. Previous studies had been done on the interaction of electromagnetic waves in various media, including the interaction of light waves in a nonlinear dielectric and nonlinear effects in a plasma. In a semiconductor with an ionic lattice, polarized electromagnetic waves caused by the interaction of plasma oscillations and optical phonons may propagate longitudinally and transversely. Nonlinear properties of the plasma and the anharmonicity of lattice oscillations lead to the nonlinear interaction of the fields, and possible combinations of interacting waves are determined by the laws of conservation and the transmission bands. The presence of two regions of transmissity for waves of longitudinal and transverse polarization make possible the interaction of three waves with the same polarization. Cases of nonlinear

USSR

RUBINSHTEYN, Ye. A., Fizika tverdogo tela, No. 4, Apr 71, pp 1105-1110

interaction of three waves in a medium without losses and in a medium with losses in the approximation of a given amplitude are investigated. Analysis of the system of equations in the approximation of a given amplitude considering damping of the medium shows the possibility of a stable quasi-equilibrium state caused by nonlinear interaction in the presence of a source of instability that compensates losses in the medium. Frequency relationships, threshold amplitudes of the fields, and dimensions of samples compatible with the experiment are determined.

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UNCLASSIFIED

TITLE--THE FAGOCYTARIC ACTIVITY OF BLOOD LEUCOCYTES IN CHILDREN WITH BRONCHIAL ASTHMA AND CHRONIC PNEUMONIA -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-SUKOVATYKH, T.N., RUBINSHTEYN, YE.V.

CCUNTRY OF INFO--USSR

SOURCE--ZDRAVOOKHRANENIYE BELORUSSII, 1970, NR 6, PP 56-57

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, PNEUMONIA, LEUKOCYTE, PHAGOCYTOSIS

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0914

STEP NO--UR/0477/70/000/006/0056/0057

CIRC ACCESSICN NO--AP0126573

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0126573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FAGOCYTARIC ACITIVITY OF LEUCOCYTES HAS BEEN STUDIED IN CASES OF BRONCHIAL ASTHMA AND CHRONIC PNEUMONIA. 64 CHILDREN SICK WITH BRONCHIAL ASTHMA AND 59 ONES, WITH CHRONIC PNEUMONIA OF THE 1-11 GROUPS. HIGHER SHOWINGS OF THE FAGOCYTARIC INDEX HAVE BEEN DETECTED IN MORE THAN HALF OF THE PATIENTS. IN SOME CHILDREN WITH A SEVERE DEVELOPMENT OF BRONCHIAL ASTHMA THE FAGOCYTARIC INDEX HAS BEEN LOWERED. THE FAGOCYTARIC NUMBER AND FAGOCYTOSIS INTENSIVENESS IN COMPARISON WITH THE FAGOCYTARIC INDEX HAVE BEEN LOWER IN A MAJORITY OF SICK CHILDREN. FACILITY: KAFEDRA PEDIATRII BELORUSSKOGO INSTITUTA. FACILITY: USOVERSHENSTVOVANIYA VRACHEY I BAKTERIOLOGICHESKAYA. FACILITY: LABORATORIYA 5-Y KLINICHESKOY BOL'NITSY.

UNCLASSIFIED

USSR

UDC 577.1:547.963.3:612.8.015

VORONKA, G. Sh., DEMIN, N. N., RUBINSKAYA, N. L., and SOLOV'YEVA, I. A.,
Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"RNA Content of Neurons and Their Glial Satellite Cells in the Supraoptic Nucleus of Rats During Natural Sleep, Deprivation of the REM Phase, and Amphetamine Insomnia"

Kiev, Ukrains'kiy Biokhimichniy Zhurnal, No 6, 1972, pp 712-717

Abstract: During natural sleep the RNA concentration in the cytoplasm of neurons in the supraoptic nucleus of the hypothalamus and in the glial satellite cells remains virtually unchanged. In rats deprived of REM sleep, the RNA concentration in the neurons likewise scarcely changes but increases markedly in the neuroglia. However, the absolute RNA content decreases in the neurons (especially after the first day) while remaining unchanged in the surrounding neuroglia. Insomnia induced by amphetamine injections reduced the absolute RNA content in all the cells, but does not alter the RNA concentration. During sleep after partial and complete 96 hours' insomnia, the RNA content remains low in the neurons but returns to the normal level in the neuroglia.

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USSR

UDC 541.13.183

KOPINETS, I. F., KOVACH, Ye. T., MIKULANINETS, S. V., RUBISH, I. D., and CHEPUR, D. V., Uzhgorod University

"Effect of Adsorption on Electrical and Photoelectric Properties of $CdS_xSe_{1-x}$ Thin Films"

Tomsk, Izvestiya VUZ, Fizika, No 4, 1970, pp 41-44

Abstract: The effect of adsorption (as one of the factors effecting the state of the surface of thin films) of oxygen, water vapors, benzene, ethyl alcohol, and acetone on the electrical and photoelectric properties of a solid solution of $CdS_xSe_{1-x}$ thin films was investigated. Experiments showed that the effect of adsorption on conductivity is a function of the thickness of the film, increasing as the thickness decreases. The adsorption kinetics also depends on the thickness of the layer: the thinner the layer, the more rapidly adsorption-desorption equilibrium occurs. Adsorption kinetics as a function of temperature was also noted: the rate of adsorption increases with temperature, probably indicating activated adsorption. The photocurrent and dark current increase under the absorption of oxygen and decrease under the absorption of benzene, acetone, ethyl alcohol, and water. The following explanation is given for these

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USSR

KOPINETS, I. F., et al, Izvestiya VUZ, Fizika, No 4, 1970, pp 41-44

results: the increase in the thermoelectron work function under chemisorption of oxygen indicates that the chemisorbed oxygen is bonded with a "strong" n-bond or acceptor bond with the surface of the samples. Adsorption of benzene, acetone, ethyl alcohol, and water leads to a decrease in the thermoelectron work function, which fact is explained by their chemisorption of the "strong" p-bond type. This chemisorption leads to a charging on the surface for the positive charge and to a bending of the zones downward in the region near the surface, which condition leads to a decrease in the thermoelectron work function under chemisorption. These results are said to agree with the electron theory of catalysis of Vol'kenshteyn and with experimental results previously obtained by the authors.

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USSR

UDC 617.755.1:616-058.9:355.3:612.223.3

DASOV, N. Ya., Major, Medical Corps, ZUBAREV, F. G., Lieutenant Colonel, Medical Corps, and RUBITEL', L. T., Lieutenant Colonel, Medical Corps

"Adaptation Disturbances in Soldiers Due to Climatological Changes"

Moscow, Voyenno-Meditsinskiy Zhurnal, No 4, 1973, pp 60-62

Abstract: Physiological and psychological studies were conducted on 2 groups of soldiers, 200 men in all, transported from northern to warmer southern regions, and back, during summer (June-July) and autumn (October-November) months. Summer air temperatures in the northern and southern regions were, respectively, 10 to 15° and 28 to 30°. Autumn temperatures varied from -1 to 5° in the north and from 10 to 12° in the south. In the summer, the mean weight loss after 2 weeks in the south was 1.7 kg. The pulse rate was accelerated throughout the stay in the south, reaching a peak at the end of the 2d week (a mean increase of 9 beats/min); while both systolic and diastolic blood pressures were decreased, the fall in the latter was much more pronounced ($P < 0.001$). On orthostatic tests the mean increase in the pulse rate was 10.6/min ($P < 0.001$). In addition, memory and attention spans of the soldiers improved during their stay in the south. Following return to the northern regions, the weight, pulse, and diastolic pressure did not immediately return

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DASOV, N. Ya., et al., Voyenno-Meditsinskiy Zhurnal, No 4, 1973, pp 60-62

to previous levels. In autumn, the change to the southern climate was accompanied by a mean weight increase of 1.5 kg, which was retained following return to the northern region, as well as an insignificant increase in pulse rate; the mean increase in systolic and diastolic pressure was 4.5 mm Hg ($P < 0.001$). On orthostatic tests pulse frequency increased by 7.6/min. Psychological tests revealed improvements similar to those observed during the summer trip. During the summer excursion the soldiers complained of excessive perspiration, decreased work capacity, loss of appetite, and somnolence in the afternoon. Only individual complaints of this nature occurred in autumn. The functional changes attendant to the transfer to the south were apparently due to the higher temperature in the southern climate, solar radiation, and hypodynamia due to inaction during the train ride. During the trip to the south the soldiers became deacclimatized to the conditions in the north and, for that reason, results of functional tests did not immediately return to former levels. Improvements in memory and attention may have been due to the fact that the soldiers became accustomed to the method of testing. The fact that results of psychological tests did not change on return to the northern regions would suggest that the psyche is relatively resistant to climatological changes.

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USSR

UDC 546.185

ROZINOV, V. G., RUBKINA, V. V., and GRECHKIN, Ye. F., Institute of the State University imeni A. A. Zhdanova and Institute of Petroleum and Carbon-Chemistry Synthesis at the Irkut State University

"Molecular Complexes of Phosphorous Pentachloride With Electron-Donor Aromatic Compounds"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 5, 1972, pp 1167-1168

Abstract: The complexes of $PCl_5$ with compounds of the form $p\text{-}MeOC_6H_4X$ where X = H, Me, OMe; and $C_{10}H_7Y$, where Y = H and α-OMe were studied photometrically in a dichloroethane solvent. Analogous complexes of the form $PCl_5 \cdot L$ are undoubtedly formed where L is $C_6H_5X$, where X = H and OEt: $MeC_6H_4Y$, where Y = H; o-, m-, and p-Me; and o- and m-OMe: $MeO_6H_4Z$ where Z = o- and m-OMe, and p-Br: $C_{10}H_7OMe$-β: anthracene: and stilbene. Colors of the complex solutions range from greenish-yellow to orange. Solutions of $PCl_5$ in neutral and electron-acceptor solvents are colorless, indicating the absence of molecular complexes.

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USSR

UDC 576.851.45.098.31:577.158.8

GOLUBINSKIY, YE. P., RUBLEV, B. D., KIRDEYEV, V. K., and SAGATOVSKIY, V. N., Rostov-na-Donu Antiplague Institute

"Cytochromes of Plague Bacteria"

Moscow, Voprosy Meditsinskoy Khimii, Vol 19, No 1, Jan/Feb 73, pp 38-42

Abstract: Differential spectrophotometry of intact cells and empty membranes of Pasteurella pestis strains EV and No 17 revealed beta and alpha absorption maxima, indicating the presence of cytochromes $b_1$, b, and $a_2$. Photoreactivation of respiration with monochromatic blue and green light (400-480 and 510-600 mmu) in a 1:5 mixture of oxygen and carbon monoxide also established the presence of cytochrome O, which is the terminal oxidase in the plague bacterium's electron transfer chain, reacting directly with oxygen. The quantity of cytochromes in P. pestis is approximately the same as in other heterotropic microorganisms. Comparison of the concentration of cytochromes per mg of intact bacteria and per mg of empty membranes indicates that the cytochromes are attached to the membranes.

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Microbiology

USSR

UDC 576.851.45.098(612.262:612.398.145.1)

GOLUBINSKIY, Ye. P.; RUBLEV, B. D.; KIRDEYEV, V. K.; Antiplague Institute, Rostov-na-Donn

"Oxidative Phosphorylation in Plague Microbes"

Moscow, Voprosy Meditsinskoy Khimii, Vol 17, No 5, Sep/Oct 71, pp 512-516

Abstract: The oxidation of NAD-$N_2$ in subcellular preparations of two P. pestis strains, EV and No 17, was combined with phosphorylation. The highest P/O ratio (0.58) was noted for a mixture of fractions of cytoplasmic membranes and the soluble proteins of the microbial cell. The efficiency of oxidative phosphorylation in P. pestis preparations depends on the concentration of inorganic phosphate in the test medium, as well as on the oxidation process during incubation of the microorganism. Sodium amytal, antimycin A, potassium cyanide and 2,4-dinitrophenol inhibit, in varying degrees, NAD-$N_2$ oxidation and associated phosphorus esterification.

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USSR

UDC 669.295:620.172.2

PETRAKOV, A. F., KHOREV, A. I., PETROV, L. N., and RUBLEV, YA. A.

"Resistance of Titanium Alloys to Repeated Static Loads"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 4, Apr 73, pp 46-50

Abstract: The effect of depth and hardness of the gas-saturated layer produced during heating for quenching and aging was studied with respect to the resistance of VT6S and VT14 titanium alloys to repeated static loads under uniaxial and biaxial tension. It was found that the gas-saturated layer (0.1 mm deep) on the surface of these alloys somewhat reduces alloy strength and sharply lowers ductility. Removal of the gas-saturated layer by etching to a depth of 0.1 mm for VT6S alloy and 0.5 mm for VT14 increased the service life of samples by 3-4 times under repeated static loads. A study of the rupture kinetics on samples of VT6S during repeated static loads showed that the gas-saturated layer mainly affects the number of cycles until the development of fatigue cracks, in that these cracks develop with the first load cycles. In short-time biaxial stress of VT14 the presence of the gas-saturated layer has little effect on the strength but severely worsens the nature of fracture. The service life of VT14 under biaxial stress with the gas-saturated layer is two orders less than without the layer. One table, four figures,
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USSR

RUBLEV, YU. V.; TUZ, V. T.; VOSTROV, G. N.

"A Method of Automatic Document Indexing with Introduction of Links between the Elements of the Search Pattern"

Moscow, Nauchno-Tekhnicheskaya Informatsiya -- Seriya 2: Informatsionnyye Protsessy i Sistemy; October, 1973; pp 30-3

Abstract: An algorithm for constructing a document's search pattern that inserts links between its terms is proposed. The algorithm is represented by a flow chart showing the following operations: Words likely to be informative are isolated from the text (these are words that are frequently encountered in the text, elements of the title, words occurring in sentences opening with such phrases as "therefore", "it follows from the above", etc.). The words are ranked by the method of correlation clusters according to decreasing infromability. The first n terms of the series are included in the search pattern.

In order to establish the links, the text is broken into segments. A list of segments containing the words from the set of n chosen ones is compiled. The segments are subjected to syntactic analysis.

Terms have been ranked by decreasing informability on the Minsk-22 computer.

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USSR

RUBLEV, YU. V. et al., Nauchno-Tekhnicheskaya Informatsiya -- Seriya 2: Informatsionnyye Protsessy i Sistemy; October, 1973; pp 30-3

A manual experiment in constructing the search pattern and inserting the links between the terms has been conducted.

The article includes two figures. There are six references.

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USSR

UDC 614.73(47-25)"1962-1967"

ZYKOVA, A. S., TELUSHKINA, Ye. L., RUBLEVSKIY, V. P., YEFREMOVA, G. P., and KUZNETSOVA, G. A.

"The Content of Artificial Radioactive Isotopes in the Air of Moscow in 1962-1967"

Moscow, Gigiyena i Sanitariya, No 4, 1970, pp 50-53

Abstract: The content of radioactive isotopes in 1962-1967 was highest throughout 1962 and early 1963, i.e., while nuclear weapons were being tested and during the first few months after the tests were halted. Even at the time of the most intense fallout, the mean concentration in the atmosphere was about $3 \cdot 10^{-15}$ curie/liter, or below the maximum permissible level established by Soviet health legislation. The level of radioactivity began to drop in the fall of 1963, and it continued to do so in all the years that followed. The mean annual concentration of radioactive aerosols from 1962-1967 decreased 40-fold, and that of $Cs^{137}$ and $Sr^{90}$ approximately 10-fold

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USSR

LIVSHITS, E. M., RUBLINETSKIY, V. I.

"Optimal Subdivision of an Ordered Set into Intervals"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 86-89 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V530, by the authors).

Translation: The class of problems in which a functional is minimized in all possible subdivisions of an ordered set into intervals is reduced to determination of the shortest path in a network. A method is presented for determining the shortest path in the network with a fixed number of lines, allowing the problem of the optimal subdivision into a fixed number of intervals to be solved.

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USSR

LIBSHITS, E. M., RUBLINETSKIY, V. I.

"Comparative Complexity of Certain Problems of Discrete Optimization"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology -- Collection of Works], No 3, Khar'kov, 1972, pp 78-85 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V535, by the authors).

Translation: Several known problems from the theory of schedules are studied and it is established that their solution requires solution of one complex problems. Thus, a difficulty common for all such problems is noted.

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1/4 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--FIFTH ALL UNION CONFERENCE ON COMETARY PHYSICS -U-

AUTHOR-(02)-RUBO, G.A., CHURYUMOV, K.I.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKIY ZHURNAL, VOL 47, NO 2, 1970, PP 454-457

DATE PUBLISHED--------70

SUBJECT AREAS--ASTRONOMY,ASTROPHYSICS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--COMET, ASTRONOMIC CONFERENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0508 STEP NO--UR/0033/70/047/002/0454/0457

CIRC ACCESSION NO--AT0129722

UNCLASSIFIED

2/4 015 UNCLASSIFIED PROCESSING DATE--30OCT7C

CIRC ACCESSION NO--AT0129722

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIFTH ALL UNION CONFERENCE ON COMETARY PHYSICS WAS HELD AT KIEV DURING THE PERIOD 6-9 OCTOBER 1969. THE CONFERENCE WAS ATTENDED BY ABOUT 90 SCIENTISTS FROM 29 SCIENTIFIC INSTITUTIONS. THE CONFERENCE WAS OPENED BY S. K. VSEKHSVYATSKIY. HE NOTED THE CONTINUING BROADENING OF RESEARCH IN THE FIELD OF COMETARY PHYSICS, THE IMPORTANCE OF COMETS AS NATURAL PROBES FOR REGISTERING THE SITUATION IN INTERPLANETARY SPACE, MAKING IT POSSIBLE TO STUDY THE CHARACTERISTICS OF SOLAR WIND PLASMA AND MAGNETIC FIELDS AND CORPUSCULAR STREAMS AT DIFFERENT HELIOGRAPHIC LATITUDES AND HELIOCENTRIC DISTANCES, CREATING PREMISES FOR USING COMETARY PHENOMENA FOR PREDICTING CONDITIONS IN INTERPLANETARY AND CIRCUMTERRESTRIAL SPACE. STUDY OF THE EVOLUTION AND ORIGIN OF COMETS AND OTHER SMALL BODIES OF THE SOLAR SYSTEM AND SOME STATISTICAL CHARACTERISTICS OF THE COMETARY SYSTEM AND THE PECULIARITIES OF THEIR ORBITAL EVOLUTION MAKE POSSIBLE A NEW APPROACH TO A WHOLE SERIES OF IMPORTANT PROBLEMS IN SOLAR SYSTEM COSMOGONY. FIFTY PAPERS AND COMMUNICATIONS WERE PRESENTED. FOR EXAMPLE, A. Z. DOLGINOV, ET AL. ANALYZED THE CIRCUMNUCLEAR REGION OF A COMET AND POSTULATED A MAXWELLIAN SOURCE OF PARTICLES AND A COLLISIONLESS ESCAPE REGIME. THEY EVALUATED A NUMBER OF PHYSICAL CHARACTERISTICS (SOURCE POWER, ESCAPE VELOCITY, OPTICAL THICKNESS, DISTRIBUTION OF MATTER, TEMPERATURE OF THE GAS MIXTURE). ESTIMATES OF THE TEMPERATURE OF THE GAS MIXTURE INDICATED POSSIBLE CHEMICAL REACTIONS IN THE CONSIDERED REGION (CARBON PYROLYSIS, FORMATION OF CYANOGEN MOLECULES).

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3/4 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0129722

ABSTRACT/EXTRACT--L. M. SHUL'MAN EXAMINED THE FORMATION OF C SUB2, C SUB3 AND N SUB2POSITIVE MOLECULES IN COMETARY ATMOSPHERES FROM COMPLEX COMPOUNDS. PHOTOLYSIS OF THESE COMPOUNDS CAN LEAD TO HEATING OF THE NUCLEUS TO 1000DEGREESK. COMPLEX MOLECULES IN A COMETARY NUCLEUS CAN BE THE RESULT OF RADIATION SYNTHESIS FROM THE SIMPLEST RADICALS UNDER THE INFLUENCE OF GALACTIC AND SOLAR COSMIC RAYS AND RADIATION OF NUCLEAR MATTER. IN TWO OTHER REPORTS THE SAME AUTHOR ANALYZED PROCESSES LEADING TO A REDUCTION IN COMETARY BRIGHTNESS (DECREASE IN SIZE OF THE NUCLEUS DUE TO THE MELTING OF ICE, FORMATION OF A SOLID CRUST ON THE NUCLEUS SURFACE). N. I. IL'CHISHINA REPORTED ON COMPLETION OF WORK ON COMPILINGA CATALOGUE OF THE PHYSICAL CHARACTERISTICS OF COMETS OBSERVED DURING 1965-1968 AND ANALYZED THE DISINTEGRATION OF A NUMBER OF PERIODIC COMETS. REPORTS BY O. V. DOBROVOL'SKIY AND OTHERS GAVE SOME RESULTS OF THE CONFERENCE OUTLINED A FIVE YEAR PLAN (1971-1975) OF BASIC WORK FOR THE ASTRONOMICAL INSTITUTES OF THE ACADEMIES OF SCIENCES AND COLLEGES OF THE USSR IN THE FIELD OF COMETARY RESEARCH. EMPHASIS WILL BE ON THE STUDY OF PHYSICAL PROCESSES IN NUCLEI, HEADS AND TAILS OF COMETS AND THEIR RELATIONSHIP TO CONDITIONS IN THE INTERPLANETARY MEDIUM AND SOLAR ACTIVITY. IMPORTANT WORK MUST BE DONE ON INVESTIGATING COMETARY SYSTEMS, THEIR ORIGIN AND EVOLUTION IN RELATION TO THE COSMOGONY OF THE SOLAR SYSTEM, CLARIFICATION OF THE NATURE AND PAST OF COMETS. THE NEXT CONFERENCE ON COMETARY PHYSICS IS TO BE HELD DURING MAY-JUNE 1971. STUDY OF THE HONDA COMET 1968C.

UNCLASSIFIED

4/4 015 UNCLASSIFIED

CIRC ACCESSION NO--AT0129722 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--THEY OBTAINED SLIT SPECTROGRAMS, SPECTROGRAMS WITH AN OBJECTIVE PRISM AND SPECTROGRAMS WITH THE 125 CM REFLECTOR OF THE STATE ASTRONOMICAL INSTITUTE WITH IMAGE CONVERTERS. INTENSITIES OF A NUMBER OF EMISSIONS WERE DETERMINED; THEY HAVE AN ASYMMETRIC DISTRIBUTION. AN ELECTROPHOTOMETRIC STUDY OF THE COMET WAS MADE IN THE B, V SYSTEM. POLARIMETRIC OBSERVATIONS INDICATED AN INCREASE IN THE PERCENTAGE CONTENT OF DUST IN THE COMETARY ATMOSPHERE WITH AN INCREASE IN SOLAR ACTIVITY. OTHER AUTHORS REPORTED A CORRELATION BETWEEN BRIGHTNESS VARIATIONS AND THE INDEX OF FLARE ACTIVITY AND WOLF NUMBERS. V. I. CHEREDNICHENKO DEMONSTRATED THAT DISSOCIATIVE RECOMBINATION CAN EXPLAIN THE APPEARANCE OF FORBIDDEN EMISSION LINES OF ATOMIC OXYGEN AND THE DISAPPEARANCE OF SO SUB2 PRIME POSITIVE, CO PRIME POSITIVE AND N SUB2 PRIME POSITIVE IONS IN COMETARY ATMOSPHERES. YE. I. KAZIMIRCHAK-POLONSKAYA TOLD THE CONFERENCE ABOUT THE INTERNATIONAL SYMPOSIUM ON "MOTION, ORBITAL EVOLUTION AND ORIGIN OF COMETS".

UNCLASSIFIED

USSR

UDC: 669.295.5:536.777

RUBTSOV, A. N., OLESOV, Yu. G., CHERKASHIN, V. I., and SUCHKOV, A. B., Zaporozhe

"Activity of Aluminum, Vanadium,and Chromium in Binary Titanium Alloys"

Moscow, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 84-87

Abstract: Use was made of the electromotive force method to study the activities of aluminum, vanadium,and chromium as a function of temperature and the content of the alloying metal in Ti-Al, Ti-V,and Ti-Cr alloys. The activities of the three metals were determined in alloys not subjected to preliminary hydrogenation-dehydrogenation. The activity of titanium was determined in the same alloys subjected to the preliminary hydrogenation-dehydrogenation. It is noted that the rise in titanium activity in the hydrogenated alloy is related to the bond rupture between the atoms of titanium and those of the alloying metal. This permits separation of some components of titanium alloys from titanium by the use of hydrogenation and subsequent hydrometallurgical treatment as well as by hydrogenation and (after degassing) electrolytic refining. A table in the original article shows the concentration dependences of titanium activity in Ti-Al, Ti-V,

USSR

RUBTSOV, A. N., et al, Izvestiya Akademii Nauk SSSR, Metally, no 6, Nov-Dec 70, pp 84-87

and Ti-Cr alloys (for 800°C) subjected to preliminary hydrogenation-dehydrogenation.

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USSR

UDC 621.762.27

RUBTSOV, A. N., OLESOV, Yu. G., USTINOV, V. S., KISELEV, O. G., CHERKASHIN, V. I., and GLUKHOV, V. P., Dnepr Titanium-Magnesium Plant

"Production of Powders of Titanium Alloys and Refractory Titanium-Based Compounds From Titanium Alloy Waste"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 18-23

Abstract: The method of electrolytic refining of titanium wastes can be used to produce high-quality titanium powder for further production use. Studies have established the following optimal electrolysis mode: anode and cathode current density 0.2-0.3 and 2.6-2.8 a/cm$^2$ respectively; temperature 870-890°C; cathode precipitate growth time 0.5-1 hr; titanium concentration in electrolyte 0.5-0.7%. The authors studied the production of electrolytic titanium powders from titanium sponge waste under near-optimal conditions. The quality of the electrolytic titanium powder was higher than that produced by hydride calcium thermal methods. Dehydrogenated powders of VT5 and VT6 alloys were produced, corresponding to the initial alloys in chemical composition.

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USSR

UDC 669.295.002.68

RUBTSOV, A. N., OLESOV, Yu. G., CHERKASHIN, V. I., ANTONOVA, M. M., and LISKOVICH, V. A.

"New Methods of Reprocessing Titanium Material Wastes"

Moscow, Tsvetnyye Metally, No 5, May 70, pp 60-62

Abstract: Two new laboratory methods of reprocessing wastes from titanium production are described and evaluated. The first method involves electrolytic refining of dehydrated titanium alloys, and the second, hydrometallurgical separation of hydrated components of titanium alloys. Titanium alloy powders of a given chemical composition were produced by hydrogenation. The expediency of producing hard refractory compounds (carbides, nitrides, borides, etc.) from titanium and its alloys wastes is stressed. The new methods are undergoing further testing.

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1/2 040 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THERMOCHEMICAL INVESTIGATION OF A CHANGE IN THE ENTHALPY OF TITANIUM DURING ITS TRANSITION INTO THE DEHYDROGENATED STATE -U-

AUTHOR-(03)-RUBTSOV, A.N., OLESOV, YU.G., CHERKASHIN, V.I.

COUNTRY OF INFO--USSR

SOURCE--POROSH. MET. 1970, 10(3), 11-15

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--ENTHALPY, TITANIUM, THERMOCHEMISTRY, HYDRIDE, ELECTRON MICROSCOPY

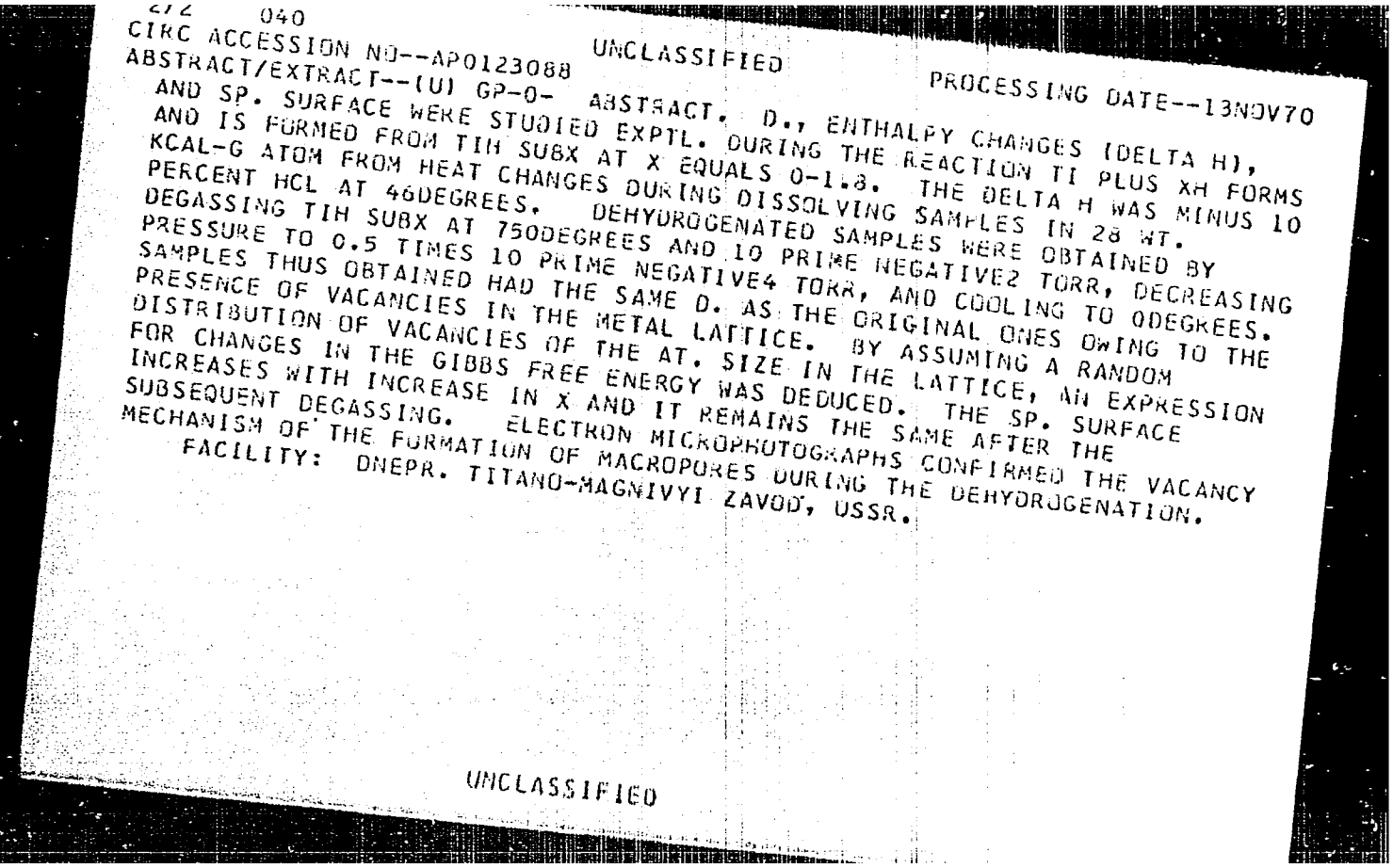
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1096 STEP NO--UR/0226/70/010/003/0011/0015

CIRC ACCESSION NO--AP0123088

UNCLASSIFIED



272 040 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0123088
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. D., ENTHALPY CHANGES (DELTA H), AND SP. SURFACE WERE STUDIED EXPTL. DURING THE REACTION TI PLUS XH FORMS AND IS FORMED FROM TIH SUBX AT X EQUALS 0-1.8. THE DELTA H WAS MINUS 10 KCAL-G ATOM FROM HEAT CHANGES DURING DISSOLVING SAMPLES IN 28 WT. PERCENT HCL AT 46DEGREES. DEHYDROGENATED SAMPLES WERE OBTAINED BY DEGASSING TIH SUBX AT 750DEGREES AND 10 PRIME NEGATIVE2 TORR, DECREASING PRESSURE TO 0.5 TIMES 10 PRIME NEGATIVE4 TORR, AND COOLING TO 0DEGREES. SAMPLES THUS OBTAINED HAD THE SAME D. AS THE ORIGINAL ONES OWING TO THE PRESENCE OF VACANCIES IN THE METAL LATTICE. BY ASSUMING A RANDOM DISTRIBUTION OF VACANCIES OF THE AT. SIZE IN THE LATTICE, AN EXPRESSION FOR CHANGES IN THE GIBBS FREE ENERGY WAS DEDUCED. THE SP. SURFACE INCREASES WITH INCREASE IN X AND IT REMAINS THE SAME AFTER THE SUBSEQUENT DEGASSING. ELECTRON MICROPHOTOGRAPHS CONFIRMED THE VACANCY MECHANISM OF THE FORMATION OF MACROPORES DURING THE DEHYDROGENATION.
FACILITY: DNEPR. TITANO-MAGNIVYI ZAVOD, USSR.

UNCLASSIFIED

UNCLASSIFIED

TITLE--A BRIEF OUTLINE FOR THE COLLECTION OF AQUATIC HERMINTHS -U-

PROCESSING DATE--23OCT70

AUTHOR--RUBTSOV, I.A.

COUNTRY OF INFO--USSR

SOURCE--JENA, ANGEWANDTE PARASITOLOGIE, VOL 11, NO 2, MAY 1970, PP 109-111

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MARINE BIOLOGY, NEMATODA, PARASITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0655

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2/2 012 UNCLASSIFIED

CIRC ACCESSION NO--AP0122750 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS BRIEF NOTE PROVIDES SOME HINTS FOR THE COLLECTION OF NEMATODES ACTING AS PARASITES IN AQUATIC INSECT LARVAE. IT WAS POINTED OUT THAT THE NEMATODES, BELONGING IN THE MERMITHIDAE FAMILY, SHOULD NOT BE FIXED IMMEDIATELY AFTER THEIR REMOVAL FROM THE HOST ANIMAL BUT SHOULD BE ALLOWED TO MATURE IN THE LABORATORY FIRST. FIXATION CAN BE ACCOMPLISHED IN A MIXTURE CONSISTING OF SIX PARTS 40PERCENT FORMALDEHYDE SOLUTION, 17 PARTS 96PERCENT ALCOHOL, TWO PARTS GLACIAL ACETIC ACID, AND 28 PARTS DISTILLED WATER.

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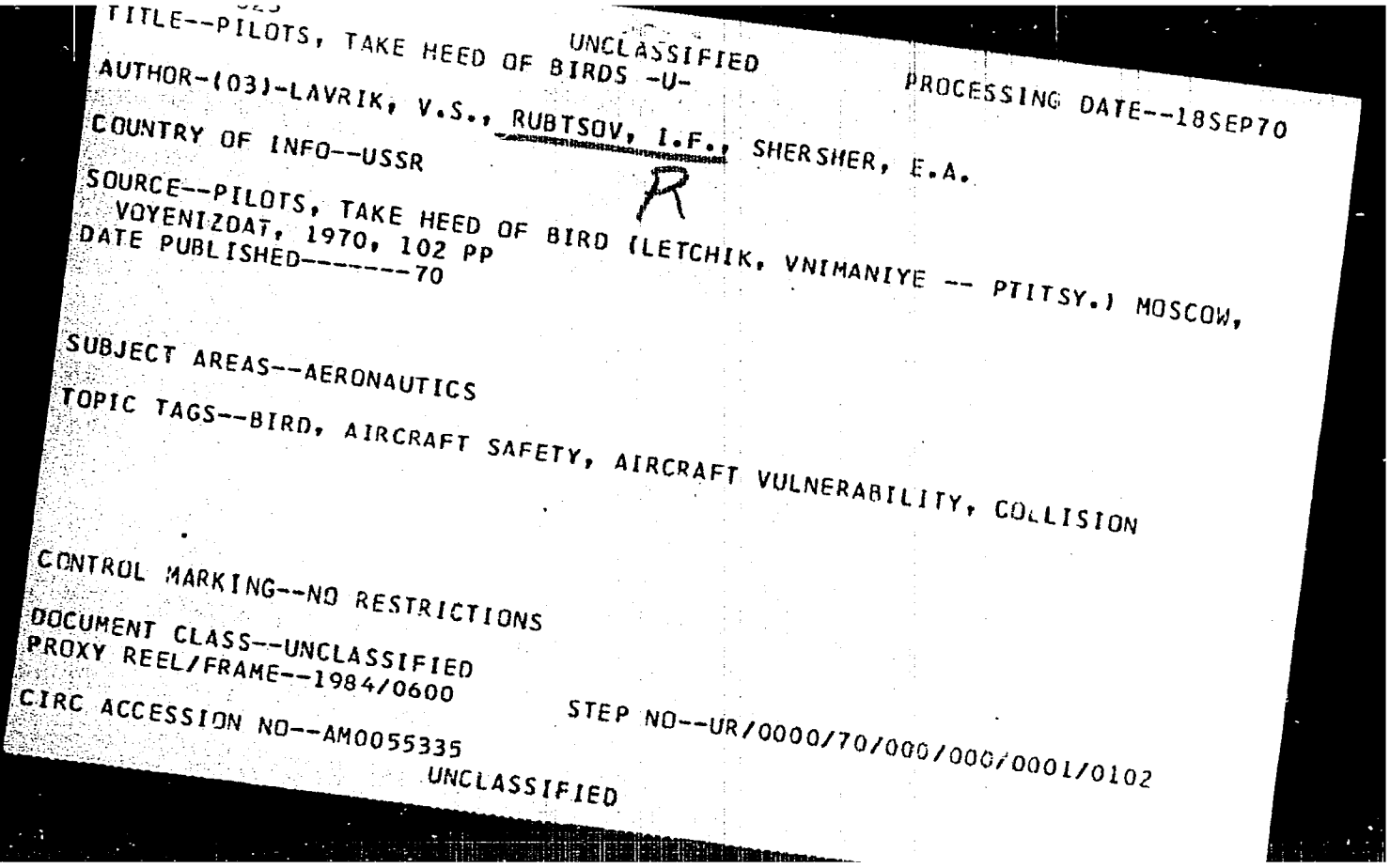

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TITLE--PILOTS, TAKE HEED OF BIRDS -U-

PROCESSING DATE--18SEP70

AUTHOR-(03)-LAVRIK, V.S., RUBTSOV, I.F., SHERSHER, E.A.

COUNTRY OF INFO--USSR

SOURCE--PILOTS, TAKE HEED OF BIRD (LETCHIK, VNIMANIYE -- PTITSY.) MOSCOW, VOYENIZDAT, 1970, 102 PP

DATE PUBLISHED-------70

SUBJECT AREAS--AERONAUTICS

TOPIC TAGS--BIRD, AIRCRAFT SAFETY, AIRCRAFT VULNERABILITY, COLLISION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0600

STEP NO--UR/0000/70/000/000/0001/0102

CIRC ACCESSION NO--AM0055335

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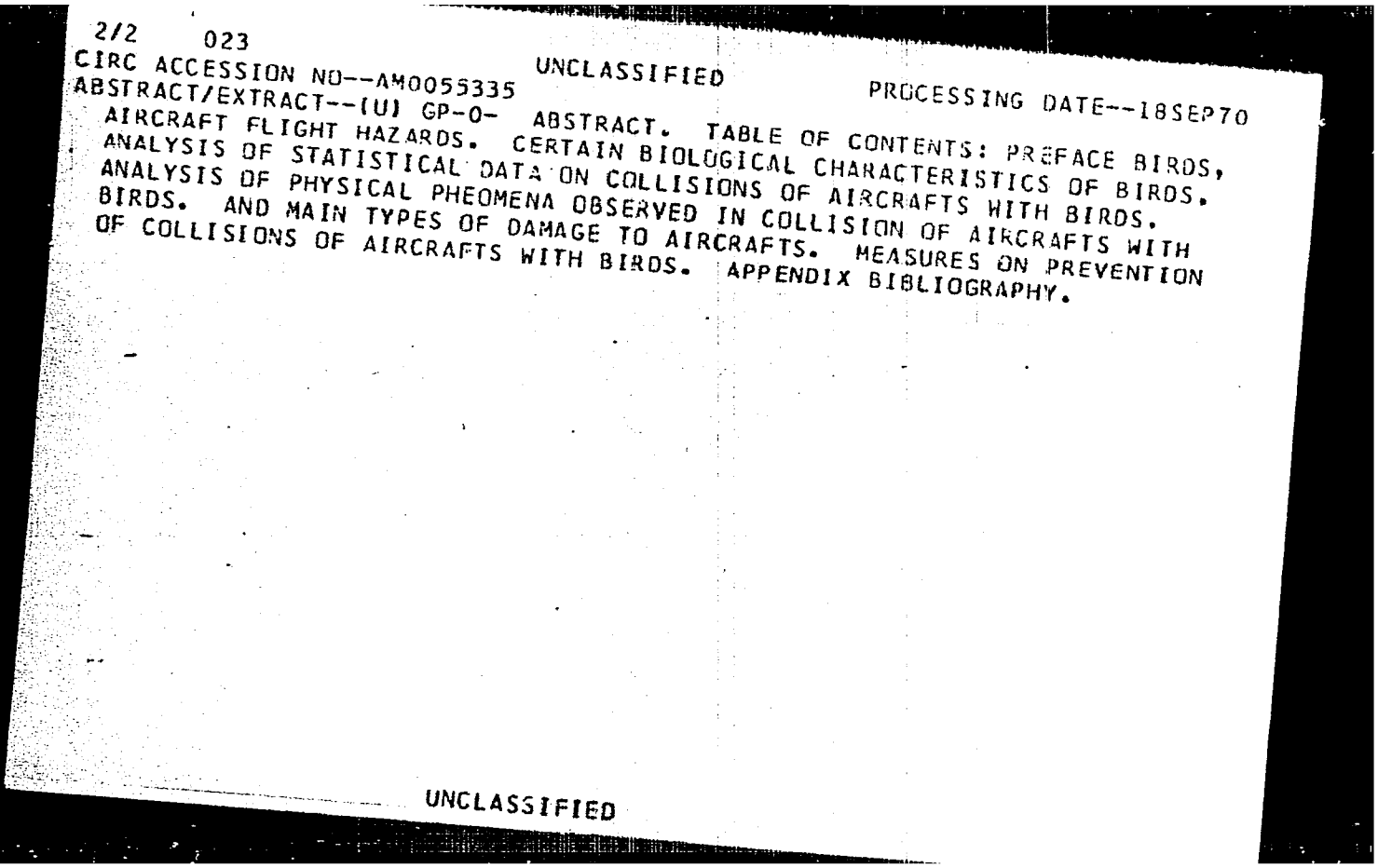

2/2 023 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AM0055335

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE BIRDS, AIRCRAFT FLIGHT HAZARDS. CERTAIN BIOLOGICAL CHARACTERISTICS OF BIRDS. ANALYSIS OF STATISTICAL DATA ON COLLISIONS OF AIRCRAFTS WITH BIRDS. ANALYSIS OF PHYSICAL PHEOMENA OBSERVED IN COLLISION OF AIRCRAFTS WITH BIRDS. AND MAIN TYPES OF DAMAGE TO AIRCRAFTS. MEASURES ON PREVENTION OF COLLISIONS OF AIRCRAFTS WITH BIRDS. APPENDIX BIBLIOGRAPHY.

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TITLE--RADIAL MOTION OF ELECTRONS AND FOCUSING THE BEAM IN A 300 MEV LINEAR ACCELERATOR WITH ALLOWANGE FOR THE INFLUENCE OF ELECTRIC FIELD

PROCESSING DATE--09OCT70

AUTHOR-(03)-GRISHAYEV, I.A., DEMYANENKO, G.K., RUBTSOV, K.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL TEKHNICHESKOI FIZIKI, VOL. 40, JAN. 1970, P. 149-154

DATE PUBLISHED----------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON BEAM, ELECTRON MOTION, LINEAR ACCELERATOR, PARTICLE TRAJECTORY, FOCUSING ACCELERATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1978/1507

STEP NO--UR/0057/70/040/000/0149/0154

CIRC ACCESSION NO--AP0046346

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0046346

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXAMINATION OF THE RADIAL MOTION OF ELECTRONS IN A LINEAR ACCELERATOR, WITH AN ALLOWANCE FOR PERTURBING FORCES DUE TO THE ELECTRIC FIELD ASYMMETRY IN THE MATCHING ACCELERATING SECTIONS. IT IS SHOWN THAT THE MAGNITUDE OF THIS FORCE DEPENDS ON THE AMPLITUDE AND PHASE OF THE ACCELERATING WAVE. THE PARTICLE TRAJECTORY IS CALCULATED AND OPTIMUM PARAMETERS FOR FOCUSING THE ELEMENTS ARE ESTABLISHED.

UNCLASSIFIED

1/4 037 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EIGHT SATELLITES LAUNCHED -U-

AUTHOR--RUBTSOV, M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SOVETSKAYA ROSSIYA, 1 MAY 1970, P 3

DATE PUBLISHED--01MAY70

SUBJECT AREAS--SPACE TECHNOLOGY, ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--MULTIPLE LAUNCH SATELLITE, RADIATION BELT, ARTIFICIAL SATELLITE, SOLAR X RADIATION, SOLAR UV RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0957 STEP NO--UR/9022/70/000/000/0003/0003

CIRC ACCESSION NO--AN0107482

UNCLASSIFIED

274 037

CIRC ACCESSION NO--AN0107482 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EIGHT SATELLITES APPEARED SIMULTANEOUSLY ABOUT OUR PLANET EARTH ON THE EVE OF MAY DAY. THEY WERE ALL PUT INTO CIRCUMTERRESTRIAL ORBIT BY A SINGLE CARRIER ROCKET. EACH SATELLITE IS IN ITSELF A SCIENTIFIC LABORATORY. THE NEW SPACE EXPERIMENT HAS EVOKED GREAT INTEREST AMONG THE SOVIET PEOPLE. M. RUBTSOV, OUR CORRESPONDENT, WRITES AS FOLLOWS CONCERNING THE UNMANNED EXPLORERS OF THE UNIVERSE AND THEIR "WORK" FROM THE SPACE RESEARCH INSTITUTE ACADEMY OF SCIENCES USSR: AN IMPORTANT PECULIARITY OF THE SOVIET SPACE RESEARCH PROGRAM IS ITS SYSTEMATIC EXECUTION, ITS BROAD SCOPE AND A COMBINATION OF DIFFERENT METHODS. FOR EXAMPLE, CONSIDER THE SATELLITES OF THE "KOSMOS" SERIES. AS IS WELL KNOWN,"KOSMOS-1" BEGAN ITS ORBITAL FLIGHT ON 16 MARCH 1962. TODAY THE NUMBER OF SATELLITES IN THIS SERIES HAS REACHED 343. THE RESEARCH PROGRAM CARRIED OUT WITH THE "KOSMOS" SERIES IS EXTREMELY VARIED. THEIR PRINCIPAL PURPOSE IS STUDY OF CIRCUMTERRESTRIAL SPACE. ON EARTH WE FEEL THE ECHOES OF STORMS IN SPACE WHICH DEVELOP AS A RESULT OF IMPACT OF THE SOLAR WIND ON THE GEOMAGNETIC FIELD AND THE UPPER ATMOSPHERE. AURORAS, MAGNETIC STORMS AND IONOSPHERIC DISTURBANCES DEVELOP IN NATURE. THE RESEARCHER MUST DEAL WITH A WIDE VARIETY OF FACTORS WHICH ARE CLOSELY INTERRELATED AND PROCESSES WHICH TRANSPIRE ON THE SUN. FOR THIS REASON IT IS IMPORTANT TO CONDUCT MULTISIDED INVESTIGATIONS AND SIMULTANEOUSLY STUDY ALL PHENOMENA BY USING SEVERAL SATELLITES CONSTITUTING INTEGRATED SYSTEMS. SATELLITES OF THE "KOSMOS" SERIES MAKE IT POSSIBLE TO STUDY THE EARTH'S RADIATION BELT AND MAGNETIC FIELD, X- AND UV- SOLAR RADIATION.

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3/4 037 UNCLASSIFIED

CIRC ACCESSION NO--AN0107482 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--USING THE INSTRUMENTS CARRIED ON SATELLITES IT IS POSSIBLE TO DETERMINE THE CONCENTRATION OF CHARGED PARTICLES IN THE IONOSPHERE. INFORMATION ON THE DISTRIBUTION AND FORMATION OF THE CLOUD COVER IS EXTREMELY IMPORTANT. GLOBAL OBSERVATION HELP IN CONSIDERABLY IMPROVING THE WEATHER SERVICE. WITH EVERY PASSING YEAR THE SCALE OF RESEARCH CONDUCTED WITH SATELLITES OF THE "KOSMOS" SERIES IS EXPANDING. HWEREAS DURING 1962-1963 A TOTAL OF 24 "KOSMOS" SATELLITES WERE LAUNCHED IN OUR COUNTRY, IN 1964 A TUTAL OF 27 WER LAUNCHED AND THE NUMBER ROSE TO 52 IN 1965. A RECORD NUMBER OF LAUNCHINGS, 64 (FROM "KOSMOS-199" TO "KOSMOS-262") WERE LAUNCHED IN 1968. THE SATELLITE FLIGHT TRAJECTORIES ARE BECOMING INCREASINGLY MORE VARIED. WHEREAS THE MAXIMUM ALTITUDE ABOVE THE EARTH'S SURFACE FOR THE FIRST "KOSMOS" SATELLITES DID NOT EXCEED 1,600 KM, NOW THEIR ORBITS ATTAIN ALTITUDES OF SEVERAL TENS OF THOUSANDS OF KILOMETERS. A WIDE RANGE OF ORBITAL INCLINATIONS MAKES IT POSSIBLE TO PUT SCIENTIFIC INSTRUMENTATION INTO NEW, EARLIER UNATTAINABLE REGIONS OF SPACE, INCLUDING THE POLAR REGIONS. WHAT RESULTS WILL BE OBTAINED FROM THE SIMULTANEOUS ORBITING OF EIGHT ARTIFICIAL SATELLITES OF THE "KOSMOS" SERIES BY A SINGLE CARRIER ROCKET? THE ADVANTAGES OF SUCH LAUNCHINGS ARE OBVIOUS. SATELLITES OF THE SAME TYPE PUT INTO SIMULTANEOUS ORBIT MAKE IT POSSIBLE TO MAKE MEASUREMENTS AT THE SAME TIME AT DIFFERENT POINTS IN CIRCUMTERRESTRIAL SPACE. SINCE THE "KOSMOS-1" SATELLITE BEGAN ITS FLIGHT A WIDE RANGE OF IMPORTANT SCIENTIFIC RESULTS HAS BEEN OBTAINED.

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